210-TP-001-006

Technical Baseline for the ECS Project

Technical Paper--Not intended for formal review or government approval.

February 1996

Prepared Under Contract NAS5-60000

RESPONSIBLE ENGINEER

Joe Guzek /s/ 2/13/95

Joe Guzek, Chief Engineer Date
EOSDIS Core System Project

SUBMITTED BY

R. E. Clinard /s/ 2/13/96

Robert E. Clinard, SMO Manager Date
EOSDIS Core System Project

Hughes Information Technology Systems
Upper Marlboro, Maryland

This page intentionally left blank.

Contents

This page is intentionally left blank.

Technical Baseline - February 7, 1996

This memo describes the technical baseline for the ECS engineering/development activities towards Release A Implementation and Release B CDR. It should be noted that this baseline is not consistent with our contractual cost baseline. This memo defines a combination of files or documents that together reflect a definition of the items necessary to establish a consistent technical baseline for Release A Implementation and Release B IDR. The following items are contained within the technical baseline:

- Mission Baseline (Spacecraft/Instrument manifests)
- Data Product Set (Data products/parameters and required resources - processing, storage and dependencies
- Landsat 7 and TRMM (TSDIS) requirements
- V0 Data Migration (Baseline plan for the migration of V0 data products to ECS)
- User "pull" baseline (Baseline user load in terms of number of users, accesses and distribution load for various time periods)
- Level 3 Requirements baseline (F&PRS Version and any modifications)
- M&O DAAC Implementation Baseline (DAAC activation and hours of operational support)
- Phasing of Capacities (Capacity buildup (processing/archive) relative to launch for those products not defined by the Ad hoc Working Group on Products (AHWGP) results

Changes in this baseline from the previous baseline dated Jan. 19, 1995 are:

1) Corrections were made to the files (Processing Descriptions and File Descriptions) to reflect modifications to the AHWGP data. The two associated files (Processing Timelines and Volume Timelines) were updated based on these modifications. The AHWGP modifications are described in the Microsoft Word file "**changes in v3.01**".
2) The GSFC archive sized to include the migration of the MSFC V0 data.
3) The user model information was updated to reflect updates for MSFC V0 data migration at the GSFC DAAC and number of users and user access information was added for ORNL. ORNL users/users accesses was assumed to be the same as for NSIDC.

The baseline information is being made available both on the ECS public server and EDHS. This provides access by both ECS and ESDIS to this information. The baseline is described in a series of files that are available on the Public volume in a subfolder titled "Version 2/7/96" in a subfolder titled "Tech Baseline" in the "baseline" folder.

The product set baseline reflects the results of the AHWGP for the TRMM and AM-1, Landsat 7, ADEOS II (SeaWinds), Meteor (SAGE III) and RADAR ALT missions. In addition the GLAS and AIRS instrument data has been provided as part of the AHWGP information. For the other

missions, the SPSO database information as of Nov. 1, 1994 was used. This incorporates the SPSO's normalized values for processing. The spacecraft information in the SPSO data base reflects the updated mission baseline out of the program restructuring activity. Based on mutual agreement with ESDIS, one mission in the restructured baseline that is not currently reflected in this baseline is the CERES Flight of Opportunity (FOO) mission. The files included in the baseline description consist of the following:

Mission Baseline 1/19/96 : Microsoft Word file providing the platforms, launch dates and instrument manifest. The CII instrument on CHEM is assumed to be a Japanese instrument with no ECS processing or archiving requirements.

Data Volume Summary 2/7/96 : Summary (Excel Spreadsheet) of the data volume of the EOS products for each instrument and product level (includes both at and post-launch products. This table also shows the delta from our previous PDR baseline data volume.

Processing Summary 2/7/96: Summary (Excel Spreadsheet) of the processing load of the EOS products for each instrument and product level (includes both at and post-launch products. This table also shows the delta from our previous PDR baseline processing requirements.

The AHWGP information provided in a set of five files consisting of the following information:

AHWGP Tables - Definitions : Microsoft Word file defines the contents (columns in each table) of the two tables (Process Descriptions and File Descriptions) provided by the AHWGP.

Process Descriptions v3.01 : Information (Excel Spreadsheet) provided by the AHWGP to provide the description of the processes that produce the products for CERES/LIS and all AM-1, Meteor (SAGE III), ADEOS (SeaWinds), and RADAR ALT instruments. Also included are the information for GLAS and AIRS instruments. This includes items such as number of operations, input/output files, and when the processes are executed.

File Descriptions v3.01 : Information (Excel Spreadsheet) describing the input and output files for the processes defined by the AHWGP. This includes file type (e.g.temporary, archive), sizes, archive site and a reference to the associated SPSO products where applicable. File sizing for Level 0 data is also not included.

Processing Timelines v3.01: File (Excel Spreadsheet) that reflects the processing load (Mflops) that are required for each instrument/process that are derived from the AHWGP information. The information is provided for each calendar quarter.

Volume Timelines v3.01 : File (Excel Spreadsheet) that reflects the volume (Gbytes/day) that are required to be archived for each file that are derived from the AHWGP information. The information is provided for each calendar quarter. This is only for files that must be archived (e.g., temporary/interim files are not included).

Ancillary v3.01 : File (Excel Spreadsheet) that reflects the volume (Gbytes/day) that are required to be archived for ancillary data sets that are derived from the AHWGP. The information is provided for each calendar quarter. The format is like the Volume Timelines file

ASF Products 8/23/95: File (Excel Spreadsheet) that reflects the volume (GB/day) of products stored at the ASF. The table indicates which products are permanently archived and those that stored only for 30 days in a "rolling" storage area. This spreadsheet reflects the ASF data products received by ECS during operations while the V0 migration baseline referred to below documents the ASF data products that are migrated during the transition to ECS operations.

Product Details v1.2U1 (Norm) : Detail information (Excel Spreadsheet) on each EOS product from the SPSO database. The information consists of the following for each product: number of parameters, production and archiving DAAC, indicator whether at or post launch, level, indicator if standard or special product, indicator whether routine or on-request, and the data volume (GB/day) and processing requirements (MFLOPS). The new baseline is the normalized values for Nov. 1, 1994 - Columns R and T in the table for volume and processing respectively. The information in this file should be used for all the products of all instruments not included in the AHWGP information. This would be for all instruments beyond AM-1 except for CERES on PM-1. In addition it can be used as a cross reference for additional information to the AHWGP data but where there is any conflict the AHWGP information has precedence.

Parameter Details v1.2U1 : Detail information (Excel Spreadsheet) for each EOS parameter from the SPSO database. The information includes the following for each parameter: Product ID, Parameter name and ID, investigator, Units, accuracy, temporal and spatial resolution, parameter volume and processing requirements, input data requirements (product dependencies) for product generation and communications required for QA. Similar to the Product Details, The information in this file should be used for all the products/parameters of all instruments not included in the AHWGP information. This would be for all instruments beyond AM-1 except for CERES on PM-1. In addition it can be used as a cross reference for additional information to the AHWGP data but where there is any conflict the AHWGP information has precedence.

Other information that describes the current technical baseline consists of the following:

TRMM : included in the “Tech Baseline” folder on public is a Microsoft Word file titled “**TSDIS Products 8/23/95**” that provides the volumes of the TSDIS products for each product level. More detailed information for the products that make up each of the product levels is available from the library in document LIB01548.1 titled “**T**ropical Rainfall Measuring Mission Science Data and Information System Product Volume Estimates” dated March 31, 1995.

V0 Data Migration : The baseline V0 migration plan is included in the “Tech Baseline” folder on public in a Microsoft Word file titled “**V0 Migration Baseline 2/7/96**”. This information describes the phasing of the migration of the V0 data sets to ECS.

User “pull” Baseline : The user “pull” baseline is available in the “Tech Baseline” folder on public in a Microsoft Word file titled “**User Pull Baseline 2/7/96**”. This describes the anticipate user load on ECS for various time periods. The system load information includes the anticipated number of users, system accesses and volume to data to be distributed. An additional Excel spreadsheet file titled “**DAAC Pull Baseline 2/7/96**” has been included to provide the allocation of the user pull load to each of the DAACs. Addition information reflecting the answers to specific user pull questions from the system designers is available in the Microsoft Word file titled "**User Pull Info 1/19/96**".

L3 Requirements Baseline : The L3 requirements baseline is available in the “Tech Baseline” folder on public in a Microsoft Word file titled “**Reqts Baseline 1/19/96**”. This describes the baseline version Functional and Performance Requirements Specification (F&PRS) and any modifications to it we are assuming for the current set of Level 3 requirements.

M&O DAAC Implementation Baseline : the baseline M&O DAAC implementation baseline is available in the “Tech Baseline” in two MacSchedule files titled “**DAAC Imp Baseline pt1**” and “**DAAC Imp Baseline pt2**”. This describes the time period for the activation of each of the DAACs along with the installation periods for the ECS releases. Also provided is the hours of operations of each of the DAACs versus time. This is also available in hardcopy form from the library in document LIB2110.

Phasing of Capacities: the baseline for the phasing of processing and archive capacities to support a ramp-up to standard products and archiving. This information reflects a phasing of the capacities relative to the launch date of each spacecraft. This information is available in a Microsoft Word file in the “Tech Baseline” folder titled “**Capacity Phasing 8/23/95**”. The phasing specified in this file is used to phase in the capacities for Science Software I&T and reprocessing. This would include TSDIS, Landsat 7 and EOS missions beyond AM-1.